Module: Tools and Equipment

Description

This module prepares students to safely and effectively operate the hand tools and power tools commonly used in the fire service, general safety practices, how to carry and handle tools properly, and how to match the right tool to the assigned task. This is important because they will rely on a wide variety of tools to perform critical tasks. Knowing how to use each tool safely and efficiently, especially under pressure, is essential to performing these jobs without delay or injury.

Module Outcome

At the end of this module, the Firefighter I student will be able to operate common firefighter hand and power tools by demonstrating tool selection, carrying techniques, operational use, and maintenance through hands-on skills evaluations to safely and effectively perform assigned tasks.

Standards

This module aligns with applicable standards in:

- NFPA 1010 *Standard on Professional Qualifications for Firefighters* (2024)
- NFPA 1407 *Standard for Training Fire Service Rapid Intervention Crews* (2020)
- NFPA 1700 *Guide for Structural Fire Fighting* (2021)
- NFPA 1936 *Standard on Rescue Tools* (2020)
- NFPA 1937 *Standard for the Selection, Care, and Maintenance of Rescue Tools* (2021)

This module directly supports one Job Performance Requirement (JPR) from NFPA 1010.

Table 1: Module Standards
NFPA 1010 (2024) Standard on Professional Qualifications for Firefighters
Chapter 6 — Firefighter I (NFPA 1001)

Standard	Requisite Knowledge or Skills
6.5.1* Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise.	• Types of cleaning methods for various tools and equipment • Correct use of cleaning solvents • Manufacturer's or departmental guidelines for cleaning equipment and tools • Selection of correct tools for various parts and pieces of equipment • Completion of recording and reporting procedures

The NFPA defines requisite knowledge and requisite skills as the minimum a student needs to know and be able to do in order to accomplish the task defined in the JPR.

Module Learning Objectives

By the end of this module, Firefighter I students will:

Table 2: Learning Objectives Module: Tools and Equipment		
ID	**Objective**	**Alignment**
LO1	Explain the function and limitations of tools, given rotating, pulling, prying, striking, and cutting hand and power tools, so that each tool is correctly classified by use type.	
LO2	Match tools to operational needs, given tools and an assignment, so that the correct tool is selected, and the operational need is addressed.	
LO3	Demonstrate safe tool-carrying techniques, given one or more hand or power tools and PPE, so that tools are controlled, points and edges are secured, and good body mechanics are maintained.	
LO4	Employ hand tools, given striking, prying, or rotating tools, an assignment, and PPE, so that the tools are used in accordance with manufacturer guidelines and task is completed safely and effectively.	
LO5	Employ fire service power tools, given tools, an assignment, and PPE, so that the tool is started, used, and shut down according to operational and safety procedures.	
LO6	Demonstrate pre-use safety checks and startup procedures, given a power tool, a safety checklist, and PPE, so that potential hazards are identified and corrected before operation begins.	
LO7	Maintain control of a power tool during operation, given a power tool, an assignment, and PPE, so that grip, positioning, and awareness of tool motion are maintained throughout the task.	
LO8	Clean hand and power tools, given cleaning supplies, PPE, and used tools, so that tools are cleaned according to manufacturer guidelines, and prepared for inspection.	6.5.1
LO9	Inspect hand and power tools, given a recently used power tool and access to appropriate cleaning and maintenance supplies, so that the tool is inspected for wear or damage, damage is identified, tools are placed in a ready state or reported otherwise, and maintenance is recorded.	6.5.1
LO10	Complete maintenance documentation, given a maintenance log or report form and a set of tools inspected during a cleaning task, so that all required fields are completed, issues are documented, and records are submitted in accordance with policy.	6.5.1

Prerequisites

The prerequisite for this module is …

PPE

The use of firefighting tools and equipment is foundational set of knowledge and skill that will be practiced throughout the rest of the course.

To be successful in this module, students will need to …

Connections to Other Learning

This module supports other modules by providing a foundation of knowledge, skill, and affective characteristics that will enable them to accomplish assignments throughout the remainder of the program.

The knowledge in this module specifically supports the following standards in other modules:

Table 3: Connections to Supported Standards
NFPA 1010 (2024) Standard on Professional Qualifications for Firefighters
Chapter 6 — Firefighter I (NFPA 1001)

Standard	Requirement
6.3.4 Force entry into a structure,	• JPR conditions require tools • Requires the ability to transport and operate hand and power tools
6.3.7* Attack a passenger vehicle fire operating as a member of a team,	• JPR conditions require hand tools
6.3.8* Extinguish fires in exterior Class A materials,	• JPR conditions require hand tools • Requires knowledge of tools and methods to use in breaking up various types of materials • Requires the ability to break up material using hand tools
6.3.9* Conduct a search and rescue in a structure operating as a member of a team,	• JPR conditions require forcible entry tools • Requires knowledge of using forcible entry tools during rescue operations
6.3.10* Attack an interior structure fire operating as a member of a team,	• JPR conditions require tools
6.3.11 Perform horizontal ventilation on a structure operating as part of a team,	• JPR conditions require ventilation tools • Requires the ability to transport and operate ventilation tools and equipment
6.3.12 Perform vertical ventilation on a structure as part of a team,	• JPR conditions require tools • Requires the ability to transport and operate ventilation tools and equipment
6.3.13 Overhaul a fire scene,	• JPR conditions require hand tools
6.3.14 Conserve property as a member of a team,	• JPR conditions require salvage tools
6.3.18 Turn off building utilities,	• JPR conditions require tools
6.3.19* Combat a ground cover fire operating as a member of a team,	• JPR conditions require hand tools • Requires the ability to construct a fire line or extinguish with hand tools
6.3.20 Tie a knot appropriate for hoisting tools,	• JPR conditions require tools

The use of tools and equipment appears again when students come back for higher level training and education. Concepts of this module are integrated into many technical rescue programs.

Boundaries of Instruction and Assessment

This module is designed for basic awareness of common fire service tools and equipment. The application of tools and equipment will be covered in greater detail in the associated modules.

Module Assessments

The following skills are required to be taught and practiced during this module. These skills should be evaluated through formative assessment during instruction.

Table 4: Formative Assessments
Module: Tools and Equipment

ID	Description of Skill	Standard	Description of Assessment
FA-01	Carry Tools		
FA-02	Employ Pick-Head Axe		
FA-03	Employ Flat-Head Axe		
FA-04	Maintain an Axe	6.5.1	
FA-05	Employ Bolt Cutters		
FA-06	Maintain Bolt Cutters	6.5.1	
FA-07	Employ 8-pound Splitting Maul		
FA-08	Employ Sledgehammer		
FA-09	Maintain Striking Tools	6.5.1	
FA-10	Employ a Halligan Tool		
FA-11	Maintain Pry Bars and Claw Tools	6.5.1	
FA-12	Employ a Pike Pole		
FA-13	Maintain Push-Pull Tools	6.5.1	
FA-14	Operate a Rotary Saw		
FA-15	Maintain a Rotary Saw		
FA-16	Operate a Circular Saw		
FA-17	Maintain a Circular Saw	6.5.1	
FA-18	Operate a Chainsaw		
FA-19	Maintain a Chainsaw	6.5.1	

Table 4: Formative Assessments Module: Tools and Equipment			
ID	**Description of Skill**	**Standard**	**Description of Assessment**
FA-20	Operate a Reciprocating Saw		
FA-21	Maintain a Reciprocating Saw	6.5.1	

The following criteria must be assessed during summative assessment and certification testing.

Table 5: Summative Assessments Module: Tools and Equipment	
Standards Assessed	**Description of Assessment**
Clean and maintain equipment according to manufacturer's or departmental guidelines (6.5.1)	
Record maintenance (6.5.1)	
Place equipment in a ready state or report otherwise (6.5.1)	

Preparation, Materials, and Resources

Student Preparation

Students should review the relevant materials in their assigned textbook.

Instructor Preparation

- Read and annotate Chapter in Textbook.
- Review other book chapters or supplemental material.
- Review and annotate the associated lesson plans and standard evolutions for this module.

Materials and Resources

- Props
- Facilities
- Equipment

Key Terms

- **Term**. Definition. (Reference)

Revision History

The following table is provided as a quick reference.

Table 6: Revision History Module: Tools and Equipment	
Revision Date	**Revision Description**
	No revisions

Module Outline

Table 7: Progression of Higher-Order Thinking Module: Tools and Equipment	
Depth of Knowledge (DOK)	**How It's Applied in the Module**
DOK 1 (Recall)	Define tool types, identify hazards, recall safety steps (Online Lessons 1–4)
DOK 2 (Skill/Concept)	Match tools to scenarios, perform inspections, follow startup procedures (Labs 1–3)
DOK 3 (Strategic Thinking)	Adjust grip/stroke based on material, communicate during team-based tool operations, evaluate tool readiness and make serviceability decisions (Labs 1–3)
DOK 4 (Extended Thinking)	Not represented in this module

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

Lesson 1: Introduction to Fire Service Tools
(-- minutes)

Learning Objectives

LO1 Explain the function and limitations of tools
LO2 Match tools to operational needs

Enabling Learning Objectives

1. Classify fire service tools by use type, given rotating, striking, pulling, prying, and cutting tools, so that each tool is categorized according to its primary function. (LO1)
2. Describe the intended function of common fire service tools, given hand and power, so that the operational role of each tool is identified. (LO1)
3. Identify limitations of specific fire service tools, given tool features and operational contexts, so that scenarios requiring alternative tools are recognized. (LO1)
4. Match tools to fireground assignments, given a task, so that the most appropriate tool is selected. (LO2)

Content Outline	Resources
▪ **Introduction** • Safe, efficient tool use begins with knowing the purpose and limitations of each tool ▪ **Tool Classification by Function** • Define major tool categories used in the fire service ▪ Hand tools used for twisting or rotating (spanners and wrenches) ▪ Hand tools used for pushing or pulling (hooks) ▪ Hand tools used for striking (flathead axe) ▪ Hand tools used for prying (Halligan) • The Irons ▪ Hand tools used for cutting (bolt cutters, axe) ▪ Power tools used for cutting (saws)	**Activities** ▪ **Materials** ▪ **Facilities** ▪ **Notes**

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

- Power tools used for spreading (spreader)

- **Tool Functions**
  - Purpose of tools
    - Forcible entry
    - Ventilation
    - Search and overhaul
    - Utility control
  - Tools with multiple functions
- **Tool Limitations**
  - Common limitations
    - Weight, maneuverability
    - Material or construction strength
    - Operator strength (working overhead)
  - Tool failure risk and firefighter fatigue
- **Matching Tools to Tasks**

Lesson 2: Tool Safety and Carrying Techniques
(-- minutes)

Learning Objectives

LO3 Demonstrate safe tool-carrying techniques

Enabling Learning Objectives

1. Describe tool safety practices, given a tool, so that risks associated with sharp edges, pinch points, and carrying near others are identified. (LO3)
2. Select tool-carrying techniques, given tools and a task, so that hand position, orientation, and control methods are appropriate to the tool type and movement required. (LO3)
3. Describe safe tool-carrying technique, given one or more hand or power tools, so that tool control is explained, sharp points and edges are identified, and balance and posture are considered. (LO3)

Content Outline	Resources
▪ General Tool Safety Practices • Common risks ▪ Sharp edges and points ▪ Loose or damaged handles ▪ Too heavy ▪ Fatigue or distraction during long carries • Working around others ▪ Verbal communication when moving tools through doorways or confined spaces ▪ Tool-Carrying Techniques • Considerations when carrying tools ▪ Tool size, shape, and weight ▪ Firefighter's body size and strength	**Activities** ▪ **Materials** ▪ **Facilities** ▪ **Notes**

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

▪ Destination and obstacles (stairs, ladders, confined space) • Use proper body mechanics • Edge down, blade away from body • Tool control: no swinging or dragging • Watch for tripping hazards	

Lesson 3: Power Tool Orientation and Safety Checks
(-- minutes)

Learning Objectives

LO5 Employ fire service power tools
LO6 Demonstrate pre-use safety checks and startup procedures

Enabling Learning Objectives

1. Identify common fire service power tools and their uses, given power tools, so that each tool is named, and its intended fireground function is described. (LO5)
2. List operational safety risks associated with power tool use, given tool types and typical fireground environments, so that hazards related to blade exposure, kickback, entanglement, and vibration are identified. (LO5)
3. Describe the steps for performing a pre-use safety inspection, given a power tool and a checklist, so that required inspection points are named and their purpose explained. (LO6)
4. Identify safety defects or deficiencies, given a power tool and a checklist, so that conditions requiring correction or reporting are recognized. (LO6)
5. Describe the correct start-up and shutdown procedures, given a power tool, so that the procedure is recited or sequenced without omission. (LO5)

Content Outline	Resources
▪ Introduction • Why power tools matter: speed, access, and risk ▪ Common Fire Service Power Tools • Rotary saws • Chainsaws • Reciprocating saws • Ventilation fans ▪ Operational Hazards • Blade hazards (unguarded teeth, rotating surfaces) • Kickback (chainsaws, rotary saws hitting dense material) • Entanglement (loose clothing, cords, webbing) • Noise and vibration (long-term fatigue) • Visibility, weather, and working position (slippery or awkward terrain) ▪ Power Tool Components	**Activities** ▪ **Materials** ▪ **Facilities** ▪ **Notes**

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

- Fuel tank (uses a mix of fuel and oil as specified by the tool manufacturer)
- Choke (controls air-fuel mix for cold starts)
- Primer bulb (draws fuel into the carburetor)
- Throttle (controls engine speed)
- Kill switch (stops engine immediately)
- Pull cord (starts combustion)

- **Pre-Use Checks**
  - Blade condition and tightness
  - Chain tension and lubrication
  - Fuel level and fuel cap security
  - Controls and safety switches functioning
  - Common examples of out-of-service criteria
    - Damaged housing
    - Missing guards
    - Leaking fuel
    - Erratic idle speed
- **Start-Up and Shutdown Procedures**
  - Before starting a power tool
    - Tool is placed on stable, level ground
    - Blade or chain is clear of obstructions
    - Guard is in place and undamaged
    - You are wearing full PPE (gloves, helmet, eye protection, and hearing protection)
    - Others are clear
  - Starting the tool
    - Using a choke
      - Limits airflow to enrich the fuel mixture, helping a cold engine start.
      - Move the choke lever to the closed (full choke) position.
    - Prime the Engine
    - Engage the Throttle Lock or Trigger Lock
    - Pull the Starter Cord
      - Pull the cord briskly and repeatedly
      - You will hear a "cough" or partial ignition
      - This may take 4–6 pulls
    - Open the Choke
      - Allows air to enter the fuel mix
      - Half or full open
    - Pull the Cord Again
      - Continue pulling until the engine starts and runs
      - Let it idle briefly before use

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Block 1: Introduction to Tools & Equipment

        - Don't let the starter cord snap back. Guide it back into the housing to avoid damage.
    - Warm Start Variation
        - If the tool was recently used, skip the choke
        - Priming may not be needed.
        - Tool should start in 1–2 pulls.
- After Start
    - Watch for irregular RPMs, smoke, or strange vibrations.
    - If it idles too high or chain/blade spins without throttle, shut it down and report the issue.
    - Squeeze and release the throttle to ensure smooth acceleration and deceleration.
    - Engage and release the safety features to ensure they operate properly.
- Shutdown procedures:
    - Let the tool idle for a few seconds (especially for rotary saws with hot blades).
    - Move the kill switch to the off position.
    - Wait until the engine and moving parts come to a full stop.
    - Let It Cool and Store Safely
        - Place the tool on a stable, non-flammable surface.
        - Do not refuel or transport until it cools.
        - Return to staging area with blade or bar facing away from others.

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

Lesson 4: Maintenance and Documentation
(-- minutes)

Learning Objectives

LO8 Clean and inspect hand tools
LO9 Clean and inspect power tools
LO10 Complete maintenance documentation

Enabling Learning Objectives

1. Identify when cleaning and inspecting tools is required, given tool condition descriptions and post-use scenarios, so that tools in need of cleaning or maintenance are recognized, and action is initiated. (LO8, LO9)
2. Select appropriate cleaning methods and supplies, given a set of hand or power tools and manufacturer guidance, so that cleaning supplies and techniques are matched to tool type and material. (LO8, LO9)
3. Inspect tools for wear, corrosion, and operational defects, given a set of used hand and power tools and a maintenance checklist, so that damage is identified and tool readiness is evaluated. (LO8, LO9)
4. Clean hand and power tools, given soiled tools and cleaning supplies, so that tools are cleaned, dried, and prepared for inspection. (LO8, LO9)
5. Differentiate between serviceable and unserviceable tool conditions, given tools with varying levels of wear or damage, so that readiness status is determined, and tools are either placed in service or reported. (LO8, LO9)
6. Complete maintenance documentation, given a maintenance log or report form and information gathered during tool inspection, so that all required fields are completed, damage or deficiencies are documented, and the form is submitted in accordance with SOP. (LO10)

Content Outline	Resources
▪ **Purpose of Maintenance** • Mission-critical tools must work when needed • Prevents injuries and delays • Demonstrates professionalism and care for department property • Cleaning is done before inspection ▪ **When to Clean and Inspect Tools** • After use in any operation involving ▪ Water, smoke, or exposure to debris ▪ Contact with oils, adhesives, or body fluids ▪ Extended storage or unknown status • Visual indicators like dirt, residue, rust ▪ **Cleaning Methods and Materials** • Match cleaning method to tool type and material ▪ Hand tools • warm water, brushes, rags • soap or mild degreaser	**Activities** ▪ **Materials** ▪ **Facilities** ▪ **Notes**

Module: Tools and Equipment

Block 1: Introduction to Tools & Equipment

- Cutting edges
  - avoid over-scrubbing
  - dry and oil afterward
- Power tools
  - wipe exterior,
  - clean intake screens,
  - avoid getting moisture into motor housing

- Manufacturer and departmental guidance always overrides general practice
- Use PPE during cleaning (gloves, eye protection when using solvents)

- **Inspection Procedures**
  - After cleaning
  - Use inspection checklist to guide process
- **Serviceability Decisions**
  - Criteria for serviceable vs. unserviceable
    - Safe to use?
    - Fully functional?
    - Meets SOP?
  - If serviceable, return to service after documentation
  - If unserviceable, tag out, report, and remove from apparatus
  - When in doubt, take it out (of service)
- **Maintenance Documentation**
  - Purpose of records
    - Compliance
    - Maintenance tracking and follow-up
    - Safety and accountability
  - Log entries should include
    - Tool type and ID number (if applicable)
    - Condition before and after cleaning
    - Actions taken
    - Any issues reported and to whom

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

Lab 1: Hand Tool Operation
(-- minutes)

Learning Objectives

LO3 Carry tools
LO4 Employ hand tools

Enabling Learning Objectives

1. Select the appropriate hand tool, given a task, so that the tool selected is suitable for the task and the operational need is addressed. (LO4)
2. Demonstrate safe hand placement and stance, given a striking or prying tool and a task, so that grip, balance, and body alignment are maintained throughout the task, tool control is maintained, and injuries are prevented. (LO4)
3. Demonstrate teamwork and verbal communication during tool use, given a two-person task requiring coordination with another firefighter, so that tool operation is synchronized and hazards to personnel are avoided. (LO4)

Content Outline	Resources
▪ **Purpose** • This lab station allows students to apply safe tool-handling techniques using common hand tools such as the Halligan, flat-head axe, sledgehammer, and pike pole. Students will first select the appropriate tool based on a basic scenario, then perform one-person and two-person tasks focused on control, body mechanics, and communication. • This is the first hands-on tool use station and should build confidence and reinforce foundational safety behaviors. It also prepares students for future tasks like forcible entry and overhaul. ▪ **Safety and Group Management Considerations** • Ensure all students are wearing full PPE, including gloves and eye protection. • Supervise closely during striking tasks to prevent over-rotation or misalignment. • For two-person tasks, pre-assign roles (e.g., striker and holder) and rehearse verbal cues before starting. • Set clear "stop" signals for immediate disengagement in case of error or instructor intervention. ▪ **Instructor Demonstration ("I Do")** • Tool Selection and Task Matching ▪ Present 2–3 mock fireground tasks • (Example, breaching drywall, forcing a lock, pulling a ceiling)	**Activities** FA-01 Carry Tools FA-02 Employ Pick-Head Axe FA-03 Employ Flat-Head Axe FA-05 Employ Bolt Cutters FA-07 Employ 8-pound Splitting Maul FA-08 Employ Sledgehammer FA-10 Employ a Halligan Tool FA-12 Employ a Pike Pole **Materials** ▪ Hand tools ▪ PPE for all students (including gloves, helmet, and eye protection) **Facilities** ▪ **Notes**

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- Verbally model the thought process for selecting the correct tool
- Hand Placement and Stance
  - Demonstrate holding a flat-head axe and Halligan:
    - Emphasize dominant hand position, support hand control, tool balance
    - Demonstrate striking position: feet shoulder-width, knees bent, back straight, controlled swing
  - Demonstrate prying motion with Halligan:
    - Tool against body, leverage with legs and hips, not arms
    - Reinforce hand and foot placement
- Verbal Communication in Two-Person Tasks
  - Demonstrate use of irons (Halligan + flat-head axe) with a partner
  - Model clear communication ("Ready. Strike.")

- **Guided Practice ("We Do")**
  - Tool Selection and Discussion
    - Present students with a scenario card or verbal task prompt
    - Ask for volunteers to select a tool, then have them explain why
    - Instructor confirms or redirects based on function and context
  - Practice Hand Placement and Posture
    - Students mirror instructor movements with inert tools (no live striking yet)
    - Instructor provides immediate feedback on:
      - Hand spacing
      - Body position
      - Tool orientation and control
  - Practice Two-Person Verbal Coordination
    - Pairs rehearse verbal cues before striking a dummy or striking block
    - Instructor walks the group through a dry run
    - Focus on teamwork rhythm and cue clarity
- **Student-Centered Practice ("You Do")**
  - Individual Tool Use Tasks
    - Assign students to 2–3 short scenario-based tasks:
    - E.g., "Pull down simulated drywall," "Strike a block to simulate entry," "Rotate a hydrant cap"

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- Rotate through Halligan, axe, hook, and wrenches
- Instructor observes and provides individualized feedback

- Two-Person Team Operation
  - Students rotate roles as striker and holder
  - Execute 2–3 strikes per role using irons setup
  - Monitor for safety, control, and communication

- **Instructor Tips**
  - Students select heavier or inappropriate tools: Remind them to prioritize safety, precision, and efficiency
  - Bending at the waist, over-swinging: Cue: "Power comes from legs, not back." Use a mirror or partner to check posture
  - Sloppy swings, lack of follow-through: Reinforce "slow is smooth, smooth is fast", start with control, not power
  - Talking over each other or no cues at all: Practice cue language out loud before actual swing.

Lab 2: Power Tool Operation
(-- minutes)

Learning Objectives

LO5 Employ fire service power tools
LO6 Demonstrate pre-use safety checks and startup procedures
LO7 Maintain control of a power tool during operation

Enabling Learning Objectives

1. Inspect a power tool before use, given a power tool, a safety checklist, and PPE, so that all inspection points are evaluated, and any deficiencies are identified and corrected or reported before operation. (LO6)
2. Start a fire service power tool, given a power tool and PPE, so that the tool is started according to manufacturer procedures, and safety is maintained. (LO6)
3. Operate a power tool, given a power tool, an assignment, and PPE, so that cutting tasks are completed safely, and the tool is used in accordance with manufacturer guidelines. (LO5)
4. Maintain control of a power tool during operation, given power tools, an assignment, and PPE, so that grip, stance, and awareness of tool motion are maintained throughout the task. (LO7)
5. Shut down a power tool after use, given an active tool and PPE, so that the tool is powered down in accordance with manufacturer guidelines, and safety is maintained. (LO5)

Content Outline	Resources
▪ **Goal**	**Activities**

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- This lab provides students their first supervised opportunity to handle and operate power tools used in fireground tasks, such as ventilation and forcible entry. The focus is on applying startup checklists, performing safe operations, and maintaining control throughout the tool's use.

▪ **Safety and Group Management Considerations**

- All students must wear full PPE, including eye and ear protection.
- Use demo tools or training props with guards/blades secured and materials like plywood or OSB for cutting.
- Maintain a student-to-instructor ratio that allows continuous observation (1:2 or 1:3 recommended).
- Clearly define a "stop" signal (visual and verbal) for emergency intervention.
- Only allow one tool to be operated at a time within the station zone.

▪ **Instructor Demonstration ("I Do")**

- Pre-Use Inspection
  - Show how to inspect a gas-powered tool
  - Fuel/oil level, choke, primer bulb, air filter
  - Blade/chain condition, guard, handle condition
  - Demonstrate using a checklist or laminated quick-reference card
- Startup Procedure
  - Demonstrate full cold start
    - Choke set, priming, stable footing, hand placement
    - Pull start and warm-up at idle
  - Demonstrate warm start variation
  - Emphasize the following:
    - Start in grounded position
    - Secure blade away from body and others
- Controlled Operation and Shutdown
  - Make a shallow cut on a training prop to demonstrate:
    - Two-hand control
    - Watching for kickback and noise changes
    - Stepping back before shutdown
  - Shut down tool using manufacturer-specific kill switch

▪ **Guided Practice ("We Do")**

- Pre-Use Inspection

FA-14 Operate a Rotary Saw
FA-16 Operate a Circular Saw
FA-18 Operate a Chainsaw
FA-20 Operate a Reciprocating Saw

Materials

▪

Facilities

▪

Notes

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- Walk through checklist with students on a second tool
- Students call out findings; instructor confirms or corrects
- Emphasize student responsibility: “You are the last line of defense before operation.”

- Startup Walkthrough
  - Student mimics each instructor step with a demo tool
  - Instructor prompts:
    - “Where is your throttle lock?”
    - “What are you checking before you start?”
  - Ensure controlled practice of choke setting, cord pull, and idle check

- **Student-Centered Practice ("You Do")**
  - Each student completes the full cycle on a tool with direct instructor observation.
    - Inspect the tool using a checklist
    - Start the tool using correct startup procedure
    - Make 1–2 guided cuts into a prop (plywood, mock roofing, etc.)
    - Shut down the tool and secure it safely
  - Instructor Observes For:
    - Stability of stance and grip
    - Tool control during startup and operation
    - Reaction to unexpected noise or resistance
    - Correct use of throttle and kill switch
    - Situational awareness (where the blade is pointed, PPE condition, spacing)
  - Remediation Loop: If student demonstrates unsafe technique, pause task. Provide targeted coaching, then have student repeat task under closer supervision
- **Instructor Tips**
  - Skipping critical parts: Require verbalization of checklist items before approval
  - Weak pull, incorrect choke sequence: Remind students: choke on for cold start, off after “cough,” restart
  - Poor body position, leaning over the tool: Cue: “Keep knees bent, tool out in front, blade visible”
  - Not letting blade stop before moving: Instruct: "Eyes on blade until it stops. Let it rest."

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- Tool pointed toward others, unaware of prop layout: Reorient student; use cones or chalk lines for safe zones

Lab 3: Cleaning, Inspection, and Documenting
(-- minutes)

Learning Objectives

LO8 Clean hand and power tools
LO9 Inspect hand and power tools
LO10 Complete maintenance documentation

Enabling Learning Objectives

1. Select appropriate cleaning methods and supplies, given used hand and power tools and manufacturer cleaning guidance, so that the cleaning method is appropriate to the tool type. (LO8)
2. Clean hand tools and power tools after use, given cleaning supplies, PPE, a work area, and tools, so that surfaces are cleaned, and tools are returned to a service-ready condition or identified for further action. (LO8)
3. Inspect hand tools and power tools, given cleaned tools and an inspection checklist, so that tool condition is evaluated for damage, wear, or defects, and any deficiencies are identified and reported. (LO9)
4. Differentiate between serviceable and unserviceable tools, given tools in different conditions, so that decisions to return tools to service or remove them from use are justified and documented. (LO9)
5. Complete maintenance documentation, given an inspection form and tool condition findings, so that all required fields are completed, issues are described clearly, and documentation is submitted in accordance with SOP. (LO10)

- **Goal**
  - This lab reinforces firefighter responsibility for maintaining the tools they use. Students will clean, inspect, and document the condition of fire service hand and power tools after simulated use. This is a critical link in the overall tool operations cycle and supports personal safety, equipment longevity, and crew readiness.
- **Safety and Group Management Considerations**
  - Ensure PPE use during cleaning (gloves, safety glasses) to protect from solvents and sharp edges.
  - Provide adequate ventilation if cleaning solvents are used.
  - Emphasize tool handling safety even during cleaning (sharp edges, moving parts).

Activities
FA-04 Maintain an Axe
FA-06 Maintain Bolt Cutters
FA-09 Maintain Striking Tools
FA-11 Maintain Pry Bars and Claw Tools
FA-13 Maintain Push-Pull Tools
FA-15 Maintain a Rotary Saw
FA-17 Maintain a Circular Saw
FA-19 Maintain a Chainsaw
FA-21 Maintain a Reciprocating Saw

Materials
▪

Facilities
▪

Notes

Module: Tools and Equipment

Block 2: Tools & Equipment Lab

- Instructors should monitor for correct use of cleaning materials and safe working postures (prevent overreaching or awkward tool positioning).

- **Instructor Demonstration ("I Do")**
  - Cleaning Tools
    - Demonstrate appropriate cleaning methods
    - **Hand tools**: rag, brush, water, mild detergent; oil application if needed
    - **Power tools**: surface wipe-down, avoid water near electrical/motor components; clean intake vents and guards
  - Inspection Process
    - Demonstrate inspection using a checklist
    - Describe how to differentiate minor wear vs. out-of-service conditions
  - Maintenance Documentation
    - Show how to complete an inspection log
- **Guided Practice ("We Do")**
  - Select Cleaning Methods
    - Lay out multiple tools
    - Ask students to describe the cleaning process for each tool
  - Clean Tools with Supervision
    - Students clean tools using rags, brushes, degreaser, etc.
    - Instructor provides coaching on technique and materials
    - Emphasize
      - Avoid soaking power tools
      - Use of oil or rust-prevention coatings when needed
  - Perform Checklist-Based Inspection
    - Walk through inspection checklist together
    - Instructor reads item, students examine tool and call out findings
    - Practice safe handling during inspection: point edges away, use gloves for sharp components
- **Student-Centered Practice ("You Do")**
  - Each student completes:
    - Select appropriate cleaning supplies for 1 hand tool and 1 power tool
    - Clean the tools and prepare them for inspection
    - Inspect the tools using the checklist
    - Decide serviceability and explain their rationale
    - Complete a maintenance log entry

Module: Tools and Equipment	
Block 2: Tools & Equipment Lab	

• Instructor Observes For:
  ▪ Correct cleaning method chosen and safely applied
  ▪ Tools cleaned thoroughly and dried appropriately
  ▪ Full inspection performed and findings correctly identified
  ▪ Sound judgment on serviceability
  ▪ Maintenance log filled out completely and legibly
▪ **Instructor Tips**
  • Students use incorrect method or over-clean: Reinforce: "Right tool, right method" power tools ≠ water exposure
  • Students rush or miss details: Emphasize slow, methodical inspection and checklist use
  • Students unsure how much wear is acceptable: Provide side-by-side examples of serviceable vs. unserviceable tools
  • Missing or vague documentation:Coach specificity: “Blade chipped near tip” vs. “damaged”	

NFPA 1407

7.14 Tools and Equipment. The training program shall include the use of any equipment or rescue techniques approved by the local AHJ.

7.14.1* Tools and equipment to be used by the RIC shall be determined by the AHJ based on need and resources available.

A.7.14.1 Each RIC member should receive training and evaluation on the following RIC equipment:

(1) Ropes, including search, rescue, and life safety ropes and webbing, 2 in. and 1 in. (5 cm and 2.5 cm) widths

(2) Forcible entry tools, as provided by the AHJ

(3) Rescue air supply

(4) Thermal imager

(5) Personal protective equipment

(6) Ground ladders

(7) Hand light

(8) Radio communications equipment

An RIC equipment package could include the following:

(1) Personal escape (bail out) rope and bag

(2) Rabbit tool

(3) Stokes basket

(4) Thermal imager

(5) Power saws

(6) 8 ft (2.4 m) attic ladder

Additional heavy rescue equipment should be available on scene for immediate use by the RIC if needed, and all members of a team should be proficient in the use of the following:

(1) Hydraulic rescue tools (spreaders, cutters, and rams)

(2) Air lifting bags

(3) Cribbing

(4) Rope rescue equipment to build lowering and hauling systems

(5) Shoring equipment

(6) Air struts

7.14.2 Training for rapid intervention shall also include training on other rescue equipment and tools provided by the fire department.

NFPA 1410

11.6 Hoisting Tools and Appliances.

11.6.1 The ability of company members to tie the representative knots, bends, or hitches for the following purposes shall be evaluated:

(1) End-of-line loop

(2) Midline loop

(3) Securing rope around desired objects

(4) Joining rope or webbing ends together

(5) Gripping rope

11.6.2 The evaluator shall select a minimum of two hoisting evolutions.

11.6.3 The evolution shall begin when the evaluator initiates the evaluation and conclude when the evaluator is satisfied that the knot or hitch has been tied correctly and the tools or appliance have been hoisted a minimum of 14 ft (5 m).

NFPA 1150

8.5 Tools and Equipment.

8.5.6* All equipment carried on fire apparatus or designated for training shall be inspected at least weekly and within 24 hours after any use.

A.8.5.6 See A.8.4.1.

A.8.4.1 The purpose of this paragraph is to ensure that all vehicles are inspected on a regular basis and checked for the proper operation of all safety features. This inspection should include tires, brakes, warning lights and devices, headlights and clearance lights, windshield wipers, and mirrors. The apparatus should be started, and the operation of pumps and other equipment should be verified. Fluid levels should also be checked regularly.

Where apparatus is in regular daily use, these checks should be performed on a daily basis. Apparatus stored in unattended stations that might not be used for extended periods should be checked weekly. Any time such a vehicle is used, it should be checked before being placed back in service. The 24-hour reference provides for situations in which a vehicle can be used within the period preceding a scheduled inspection, although any deficiencies noted in use should be corrected without delay.

The safety equipment carried on fire department vehicles should be inspected in conjunction with the inspection of the vehicle.

8.5.7 Inventory records shall be maintained for the equipment carried on each vehicle and for equipment designated for training.

8.5.8 All equipment carried on fire apparatus or designated for training shall be tested at least annually in accordance with manufacturers' instructions and applicable standards.

8.5.9 Firefighting equipment found to be defective or in unserviceable condition shall be removed from service and repaired or replaced.

8.5.10 All fire department equipment and tools shall be cleaned and disinfected in accordance with NFPA 1581.

NFPA 1700

11.13 Fireground Tactical Consideration — Gross On-Scene Decontamination.

11.13.1 Strategic Objective. Gross on-scene contamination is the systematic removal of the byproducts of the fireground from tools, equipment, and PPE. Fire fighters should make efforts to remove all byproducts from their equipment in an effort to promote a healthier environment, including reducing exposure to potential carcinogens and keeping tools and equipment serviceable.

11.13.2 How it Works.

11.13.2.1 Wet Decontamination.

Water should be used with soap and/or physical brushing to remove contaminants that have been deposited onto the fire fighters' PPE, tools, and equipment while still on scene. The following are considerations for wet decontamination:

(1) Depending on the situation, gross decontamination may be performed prior to fire fighters doffing PPE or after it has been removed. Considerations must include environmental conditions and potential for contaminating exposed skin through splash or dermal contamination.

(2) Members should brush large debris first and then spray each other with water to remove loose particulates from turnouts and equipment.

(3) Some products of combustion result in a "sticky" deposit on the gear, requiring detergents or other surfactants to remove.

(4) Wet decontamination techniques may temporarily place PPE out of service, and a second set of turnout gear fit to the fire fighter should be put in service where possible.

11.13.2.2 Dry Decontamination.

Techniques that do not wet the PPE may be employed depending on the level of contamination, environmental conditions (particularly cold conditions), and materials available on scene. Dry brushing and air-based brushing methods have been proposed as means to remove the toxic products of combustions from the fire fighters. The following are considerations for dry decontamination:

(1) If wet decontamination is not an option, dry decontamination should be performed prior to the fire fighter doffing PPE unless there is a medical condition needing immediate attention or other emergency such as running out of air. Specifically, consider the impact of environmental conditions as well as the potential for the breathing of airborne contaminants and cross-contamination of exposed skin.

(2) When feasible, personnel should allow PPE to off-gas as described in **11.5.4** prior to bagging their gear for the return to the station.

(3) All fire fighters engaged in suppression activities, overhaul, or exposure to smoke should exchange their contaminated hoods and gloves after exiting the immediately dangerous to life and health (IDLH) environment.

NFPA 1960

22.4 Design Requirements.